Tooele Chemical Agent Disposal Facility (TOCDF)

Request for a

CLASS 2 MODIFICATION

to the

TOCDF RCRA Permit

Request Number:	TOCDF-WAP-02-0989
Request Title:	Waste Analysis Plan Changes for Demilitarization Protective Ensemble (DPE) Suit Waste Stream
EPA ID Number:	UT 5210090002

For the:

STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

Division of Solid and Hazardous Waste (DSHW)

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1. DESCRIPTION OF CHANGE

OVERVIEW

TOCDF is currently processing Mustard agent filled munitions. As part of the current processing strategy, TOCDF is treating and disposing of Mustard agent contaminated secondary waste as it is being generated in order to prevent placing Mustard contaminated wastes into permitted storage or having to impact the Closure phase of the project. Secondary waste can be described as items derived from the routine processing of chemical munitions, such as protective gear, plastics, clean-up materials and by-products from the treatment of chemical munitions.

DESCRIPTION AND BACKGROUND

The TOCDF Waste Analysis Plan (WAP) describes the analyses that TOCDF is required to perform before hazardous wastes can be stored, treated, or transported off-site for further treatment and ultimate disposal. The methods and frequency for the collection and analysis for samples are included and further described in Tables 2-0 and 2-1 of the WAP.

This permit modification pertains to one waste stream identified in WAP Paragraph 2.2.2.21, DPE Suits. This waste stream is described as Demilitarization Protective Ensembles (DPE), which are the protective suits worn by TOCDF workers, miscellaneous plastics, and other Toxic Area Protective (TAP) gear worn during the course of operations in areas where liquid or vapor agent contamination may occur. DPE suits are fully-encapsulated protective gear to assure that the plant worker is afforded the maximum protection from dermal contact and breathing hazards. DPE items are made primarily of Polyvinyl Chloride (PVC), resins, and plasticizers . Each suit or item is decontaminated by a thorough cleaning process before the worker is removed from the suit. The suit is then placed into an appropriate container for storage until final disposal.

The current TOCDF permit allows suits that have air monitoring results below 0.2 Vapor Screening Limit (VSL) to be characterized as waste code P999/F999 and sent off-site to a commercial hazardous waste disposal facility for final disposition.

Presently, there are two analytical parameters for the determination of off-site treatment/disposal, agent concentration by air monitoring and agent concentration determined by extraction analysis.

TOCDF is proposing to increase the air monitoring criteria used to qualify DPE for offsite disposal from 0.2 VSL to <1.0 VSL, and to place "special handling" requirements on DPE drums of waste with monitoring results between 0.2 VSL and 1.0 VSL. DPE suits with an agent monitoring result greater than 1.0 VSL (considered P999 waste) will be kept on-site for treatment through the Metal Parts Furnace, and the treatment residue (ash) will be handled in accordance with current permit conditions. Since air monitoring results will be utilized to segregate the DPE suits for either off-site shipment or on-site processing, TOCDF is proposing the removal of the method for agent concentration by extraction as a means of determining waste codes for this waste stream.

This expanded definition of P999/F999 as proposed would apply to DPE waste streams from each agent type processed at TOCDF. As mentioned above, TOCDF is concurrently processing Mustard DPE waste as it is being generated in order to minimize future material handling of this waste.

In 2004, the Department of the Army, Chemical Materials Agency, adopted new guidelines for worker safety called the Airborne Exposure Limits (AELs). These airborne exposure limits mirror the way that industry considers personnel protection in hazardous environments and is endorsed by the Centers for Disease Control (CDC). As part of that AEL implementation, the Chemical Materials Agency adopted a more situation specific, health-based criteria for assessing safety and appropriateness of environmental management decisions. These health-based criteria are developed by considering a specific chemical, a specific scenario in which workers or the public could be exposed to hazards, and the activities to be performed in estimating a potential for an exposure situation. This use of a health-based risk approach ensures that there is consistency in decision making and that the worker and general public are protected.

REGULATORY BASIS AND CLASSIFICATION

This Resource Conservation and Recovery Act (RCRA) Permit Modification Request proposes to change the Waste Analysis Plan disposal requirements for a particular waste stream, DPE Suits. This modification request is proposed as a Class 2 modification in accordance with 40 CFR §270.42 Appendix I, B.1.d., "Other changes to waste sampling or analysis methods".

2. JUSTIFICATION FOR CHANGE

1.0 VSL Screening Criteria is Protective

The AELs published by the CDC in 2004 state that the chemical worker has an AEL for all agent types of 1.0 Short Term Exposure Limit (STEL), which is a 15 minute Time Weighted Average (TWA). Additionally identified within the AELs is the Vapor Screening Limit, or 1.0 VSL, which is recognized as a vapor concentration term that is independent of time. The VSL may be used to define the level to which an item is monitored to determine the agent contamination level, or alternately, as the readout of a near real time monitor. A VSL is determined from air that is sampled for five minutes, so a VSL is a more immediate reading than a Short-Term Exposure Limit (STEL). This reading will determine how the waste stream will be packaged for transportation or disposed of on site. Since VSL readings of 1.0 VSL or below are considered safe, these waste streams can be safely packaged and transported for final disposition at a hazardous waste facility.

It is also important to note that the DPE waste stream is subject to a thorough decontamination process in the facility prior to its packaging for storage or treatment. These decontamination practices are proceduralized and strictly controlled within the facility to ensure worker protection. Any waste items that do not meet the monitoring screening criteria of less than 1.0 VSL are segregated and the waste bags are marked using special tape to delineate that those waste bags will require special handling. These facility practices use a rigorous surface cleaning approach to reduce the potential for

to reduce the potential for contamination of the waste material and to protect the facility worker. The decontamination procedures are used in concert with headspace monitoring (air monitoring with an Automatic Continuous Air Monitoring System probe) in an enclosed space (typically, a waste bag) that checks for detectable airborne concentrations. When the monitoring readings are below the 1.0 VSL level, then the waste items are deemed safe to be handled by unprotected workers within the facility and are packaged for storage or further disposal activities.

Special Handling Requirements

TOCDF will require that the Subtitle C facility receiving this waste demonstrate that they have been properly permitted and that they are operating in accordance with all applicable permits.

In addition to the standard contract practices for these facilities, TOCDF will institute additional enforceable contract requirements as an added measure of control. The special handling requirements for items between 0.2 VSL and 1.0 VSL will include:

1. Upon receipt at the receiving facility, the drums shall be inspected to ensure container integrity is maintained during shipping
2. The sub-contractor will be required to don Personal Protective Equipment (PPE) that is pre-approved by TOCDF, and the PPE procedures must be submitted in advance for approval
3. Shipment must be handled as a batch and processed within 10 days at the receiving facility
4. Drums may not be opened or crushed at the receiving Subtitle C facility. The drums shall be placed intact, directly into the landfill.
5. TOCDF personnel will place the drums on the sub-contractor supplied transport
6. Subcontractor contingency procedures must be provided and pre-approved by TOCDF

These special handling requirements will ensure that this waste stream is properly handled at the receiving facility, and that the personnel at the receiving facility do not open or come into direct contact with this waste stream.

The overall strategy for managing this waste stream-headspace monitoring, generator knowledge through rigorous work control practices, and special handling requirements by the Subtitle C facility ensure that DPE waste stream items between 0.2 VSL and 1.0 VSL will be disposed of in a manner that is protective of human health and the environment.

3. PERMIT CHANGE PAGES

Change Pages in Permit Body

None

Change Pages in Permit Attachments

Attachment 2, Pages 19 and 20
Table 2-0, Section 2.2.2.14., Page 31
Table 2-1, Section 2.2.2.21., Page 37

Changes to Permit Drawings

None

2.2.2.20.2 UPA personnel shall use ONC/overpack agent monitoring to determine if dunnage has become contaminated during transport to TOCDF. Dunnage present in ONCs/overpacks having agent monitoring results of 0.5 VSL or greater shall be characterized as P999 hazardous waste and managed as specified in paragraph 2.2.1.11.2.

2.2.2.20.3 Samples of dunnage (that have not been declared hazardous waste by Area 10) shall be taken in accordance with Table 2-1 from ONCs/overpacks that monitor below 0.5 VSL and do not contain leaking munitions. If an analysis of representative samples of dunnage shows agent concentrations at or above the WCL, the dunnage shall be characterized as P999 hazardous waste and managed as specified in paragraph 2.2.1.11.2. If the agent analytical results show the agent concentration is below the WCL and exhibits no hazardous waste characteristics or listings, the dunnage is not considered a listed hazardous waste.

2.2.2.21 DPE Suits

2.2.2.21.1 Demilitarization Protective Ensemble (DPE) suits are encapsulating supplied air PPE worn by personnel required to enter areas in the MDB where agent liquid or vapors are known to exist. DPE suits are made of a mixture of PVC, chlorinated polyethylene resins, plasticizers, and metal stabilizers, as opposed to the Army Level A Suits that are made of butyl rubber. Each suit is decontaminated before the "Entrant" is removed from the suit. The decontaminated suits are bagged in containers (typically plastic bags, with two to three suits per bag).

2.2.2.21.2 Discarded DPE Suits shall be characterized as P999, F999, or a combination of P999/F999 hazardous waste.

2.2.2.21.3 DPE Suits that are not monitored for agent shall be characterized as P999 hazardous waste and managed as specified in paragraph 2.2.2.21.8.

2.2.2.21.4 ~~DPE Suits may be characterized as F999 hazardous waste if the agent monitoring results of the volume of air within the suit's container shows an agent concentration less than 0.2 VSL, and the requirements specified in paragraph 2.2.2.21.9 through 2.2.2.21.10 are met.~~Reserved.

2.2.2.21.5 DPE Suits may be characterized as P999/F999 hazardous waste based upon generator knowledge and agent monitoring results of less than ~~0.2~~ 1.0 VSL and will be managed in accordance with paragraph 2.2.2.21.10.

2.2.2.21.6 Containers of DPE suits having agent-monitoring results equal to or greater than ~~0.2~~ 1.0 VSL shall be characterized as P999 hazardous waste and managed as specified in paragraph 2.2.2.21.8

2.2.2.21.7 ~~DPE suit samples shall be collected from the section of the suit most likely to become contaminated while being worn by the wearer rubbing up against agent-contaminated equipment, that is, the front lower mid-section of the suit. Samples of DPE suits passing the agent monitoring shall be sampled and analyzed at a frequency of twenty percent of the DPE suits or one sample per container, whichever is greater.~~Reserved.

2.2.2.21.8 DPE suits to be managed as a P999 listed hazardous waste may be treated in the MPF based on the results of the MPF Secondary Waste Demonstration Test. The treated DPE suits residue shall be managed off site as an F999 hazardous waste in accordance with condition 2.2.2.9. ~~if the agent concentration is below 20 ppb for GB and VX and 200 ppb for mustard (other waste codes may apply).~~

2.2.2.21.9 ~~DPE suits may be managed off site as an F999 listed hazardous waste if the requirements of paragraph 2.2.2.21.4. are met and an analysis of an extract prepared from a sample of the suits is below 20 ppb for GB and VX and 200 ppb for Mustard.~~ Reserved.

2.2.2.21.10 DPE suits shipped off site as F999 or F999/P999 hazardous waste shall be managed at a Subtitle C TSDF.

2.2.2.22 Spent Non-Agent Contaminated MDB Equipment Hydraulic Fluid and Lubricating Oil

2.2.2.22.1 Spent hydraulic fluid and lubricating oil generated in the MDB to be transported off site for treatment shall be analyzed for chemical agent concentration, HRA metals, and TCLP organics.

2.2.2.22.2 MDB-generated spent hydraulic fluid and lubricating oil having agent concentrations less than 20 ppb for GB and VX, and 200 ppb for Mustard may be managed at an off-site Subtitle C TSDF or treated in the primary chamber of one of the LICs in accordance with Section 2.2.1.15.

2.2.2.22.3 MDB-generated spent hydraulic fluid and lubricating oil contaminated with chemical agent at or above 20 ppb for GB and VX, and 200 ppb for Mustard, shall be managed in accordance with Section 2.2.1.15.

2.2.2.22.4 The failure of a mechanical system inside the MDB could result in the generation of fluids contaminated with chemical agent and be commingled with spent decontamination solution. These fluids shall be collected in sumps and transferred to SDS-TANK-101, SDS-TANK-102 or SDS-TANK-103 and managed as described in Section 2.2.1.4 or 2.2.2.28.

2.2.2.22.5 Rags and absorbent materials from cleanup of hydraulic fluid and lubricating oil spills shall be characterized and managed appropriately.

2.2.2.23 Reserved

2.2.2.24 CAL Aqueous Wastes

2.2.2.24.1 Operation of analytical equipment within the CAL results in the generation of an aqueous waste stream.

2.2.2.24.2 CAL aqueous waste shall be analyzed for agent concentration, corrosivity (pH), ignitability, TC metals, and TC organics.

2.2.2.24.3 CAL aqueous wastes may be transported off site for further treatment and ultimate disposal at a Subtitle C TSDF only if the agent concentration in the waste is below 20 ppb for agents GB and VX, and 200 ppb for agent Mustard.

2.2.2.25 CAL Solid Wastes (debris)

Table 2-0
TOCDF WASTE ANALYSIS PLAN SUMMARY

2.2.1 WASTES REQUIRING ON-SITE TREATMENT

WASTE STREAM	TREATMENT UNIT(S)	ANALYTICAL PARAMETERS[5,7]	PREPARATION and ANALYTICAL METHODS[1,5]	FREQUENCY OF ANALYSIS[5] (Establish Profile)	SAMPLING METHOD[5]
2.2.1.14 ~~Reserved~~DPE Suits	MPF	Agent Concentration (Air)	ACAMS TE-LOP-524/TE-LOP-522	Each bag of DPE suits having a agent monitoring result of greater than 1.0 VSL	Head-Space Monitoring
2.2.1.15 Miscellaneous Agent Contaminated and Non-Agent Contaminated Liquid Wastes	LIC 1 and LIC 2 Primary Chamber	HRA Metals Review of manufacturer's information for all Properties) for organic constituents identified in Permit.	3050, or 3051, and 6010, or 6020 and 7470	Once for every batch[2]. Analysis to be completed prior to treatment.	Tap
2.2.1.16 Reserved					
2.2.1.18 Secondary Waste	MPF	HRA Metals, BTU s, Total Halogens, Ash Content Agent Concentration	3050, or 3051, and 6010 or 7470 ASTM D 5865 or generator knowledge 9056 or generator knowledge ASTM D482 or generator knowledge TE-LOP-584, or generator knowledge	Each WIC fed with sludge	Thief, Scoop, Coliwasa.
2.2.1.19 Agent Contaminated Sludge and Aqueous Waste	MPF	HRA Metals	3050, 6010/7470	Each WIC	Coliwasa or Pipette.

Footnotes:

1. Analytical methods included those unique to TOCDF (designated as TE-LOP-XXX) and EPA SW-846 methods.
2. A batch is defined as all the drums (or containers) of waste generated from the same event, at the same location.
3. TCLP organics are defined as those compounds described by 40 CFR 261.24 by the waste codes D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, and D042.
4. Dioxins (PCDDs) and Furans (PCDFs) are additionally analyzed for only if waste is Toxicity Characteristic for organics.
5. In addition, the Permittee shall sample the organic analytical parameters using the sampling and analytical methods in accordance with Section 2.10.
6. TCLP metals are defined as those described in 40 CFR 261.24 as waste codes D004, D005, D006, D007, D008, D009, D010 and D011.
7. HRA metals are defined as the following Arsenic, Barium, Chromium, Cadmium, Lead, Mercury, Silver, Selenium, Aluminum, Antimony, Beryllium, Boron, Cobalt, Copper, Manganese, Nickel, Thallium, Tin, Vanadium and Zinc.
8. Toxicity characteristic volatile organics include benzene, carbon tetrachloride, chlorobenzene, chloroform, methyl ethyl ketone, nitrobenzene, tetrachloroethylene, trichloroethylene, and vinyl chloride.

Table 2-1
TOCDF WASTE ANALYSIS PLAN SUMMARY

2.2.2 WASTES REQUIRING OFF-SITE TREATMENT/DISPOSAL

WASTE STREAM	GENERATION SOURCE	ANALYTICAL PARAMETERS[5]	PREPARATION and ANALYTICAL METHODS[5]	FREQUENCY OF ANALYSIS[5] (establish profile)	SAMPLING METHOD
2.2.2.20. Dunnage Generated in the Unpack Area	UPA	Chemical Agent TCLP Metals TCLP Organics	TE-LOP-572 1311 and 3010 or 3015 and , 6010 or 6020 and 7470 1311 and 5030 and 8260 (volatiles) and 3510 or 3520 and 8270 (semi-volatiles)	One composite sample for analysis collected from a container on a quarterly basis (Every three months)	Wood plane to collect shavings from dunnage surface/ discolored or stained areas selected for sampling
2.2.2.21. DPE Suits	MDB	Agent Concentration (air)	ACAMS TE-LOP-524/DAAMS TE-LOP-522	Each bag of DPE suits, monitored for chemical agent. (P999/F999). Suits with results below 1.0 VSL may be disposed of off-site.	Head-Space Monitoring
		~~Agent Concentration (extraction)~~	~~TE-LOP-572~~	~~Samples of DPE suits passing the air monitoring shall be sampled and extracted/analyzed at a frequency of twenty percent of DPE suits or one sample per container, whichever is greater. (F999)~~	~~Piece cut from DPE suit front mid-section~~
2.2.2.22. Spent Non-Agent Contaminated Hydraulic Fluid and Lubricating Oil	MDB	Agent Concentration TCLP Organics[3] HRA metals	TE-LOP-572 1311 and 5030 and 8260(volatile) and 3510 or 3520 and 8270 (semi-volatile) 3050 or 3051 and 6010 or 7470 or 7471 TE-LOP-557	Each batch: One sample each from 10% of the drums comprising a batch, composited into one sample for analysis	Coliwasa
2.2.2.23. Reserved					
2.2.2.24. CAL Aqueous Waste	CAL	Agent Concentration Corrosivity (pH) Ignitability TC Metals TC Organics[3]	TE-LOP-572 TE-LOP-574 (9040) 1020 or 1020 1311 and 3010 or 3015 and 6010 or 6020 or 7470 1311 and 5030 and 8260 and 3510 or 3520 and 8270	Each container: One sample for analysis	Coliwasa
2.2.2.25. CAL Solid Wastes (debris)	CAL	Chemical Agent Concentration	TE-LOP-572	Each container: One sample of the decontamination solution collected at the bottom of the accumulation container taken for analysis	Coliwasa